Sound Neuroscience: An Undergraduate Neuroscience Journal

Volume 2
Issue 1 *Women in Neuroscience*

Article 13

2015

Martha Farah and Neuroethics

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Introduction

This paper will provide a short biography of Martha Farah and her contributions to the field of cognitive science and neuroethics. It will also include a short discussion of the field of neuroethics, its emergence in the beginning of the twenty-first century, and some of the topics currently under discussion, such as enhancement of normal function and monitoring of brain functions.

Biography

Martha Farah, born on August 30, 1955, is a neuropsychologist. Currently, she is a professor of Psychology and the director of the Center of Neuroscience and Society at the University of Pennsylvania. Her education includes bachelor degrees in metallurgy and philosophy from MIT in 1977 and a doctorate in Psychology from Harvard University in 1983 followed by postdoctoral studies in neuropsychology at MIT and Boston University School of Medicine from 1983 to 1985(1). Much of her work as a neuropsychologist has involved visual recognition, attention, mental imagery, semantic memory, reading, and prefrontal function (2). She received the Troland Award from the National Academy of Sciences for analysis of visual cognition (3) and the John Simon Guggenheim Fellowship for work on perception and motor performance (4) in 1992. Additionally, she has been recognized in 1993 by American Psychologist for work in visual recognition (1) and by the Association for Psychological Science for contribution to psychology in 2008 (5). As of the early 2000s, Farah also began work in the new field of neuroethics.

Field of Neuroethics

Neuroethics is defined by the Encyclopedia of Bioethics as “Analysis of ethical challenges posed by chemical, organic, and electromechanical interventions in the brain” (6). This field emerged in the early 2000s as neuroscience and neuropsychology became more prevalent and impactful in people’s daily. Farah discusses the need for such a field in various journals and articles. In a Nature Neuroscience commentary article in 2002, she argues that neuroscientists

need to engage in discussion of neuroethics and facilitate the topics being examined by scientists and others, citing that people outside of the field had dominated the discussion thus far (7). She furthers the argument in the 2004 The Hastings Center Report article that these ethics issues must be discussed in order to make neuroscientific discoveries useful to society (8). These arguments are reiterated in a 2007 Journal of Cognitive Neuroscience editorial that invites neuroscientists to submit scientific based research papers on neuroethics to the JOCN (9). Farah introduces the idea that the JOCN will begin to accept articles on neuroethics and will lead the selection of papers to the JOCN. She also shares some other new publications that will be dedicated to neuroethics, such as American Journal of Bioethics – Neuroscience, BioSocieties, and Neuroethics. In this JOCN editorial, Farah acts as a spokesperson for the JOCN and the scientific community to engage neuroscientists in discussion of the ethical, social, and legal dimensions of neuroscience. It becomes evident from this editorial that published articles on neuroethics in scientific journals is a newer practice, which must be introduced to the scientific community as a possible area of research and discussion.

Involvement in Neuroethics

In addition to encouraging fellow scientists to engage in these conversations, Farah leads by example through her own analysis and research in neuroethics. Several topics that she has identified as important include pharmacological enhancement and intervention, monitoring brain function, and implications of neuroscientific knowledge on human perception of self and human responsibility.

As drugs become more sophisticated, involving fewer side effects and a wider range of treatment options, Farah argues that it is all the more important for the ethics involved to be considered. One component is the ability to produce an enhancement of physiological and psychological functions, including mood, cognition, and memory. A problem that Farah identifies within the enhancement discussion is the undefined line between the use of medication for illness and for normally functioning people (7). One medication of focus is Adderall (used in the treatment of ADHD). She approaches discussion of this problem through scientific evidence and social morals, which include social equality, physical safety, and freedom of choice in usage of medications. Societal values involving that of parental expectations and hopes for their children along with educator's preferences for well-behaved children are cited as improper

motivations for usage of Adderall. She links this to structural practices that allow children to be improperly diagnosed and prescribed Adderall due to their parental and teacher's assessments. Farah considers these social biases that could have negative physiological impacts on the children. One negative impact she considers is decreased creativity, in individuals and in society as a whole. In 2009, Farah along with three colleagues tests this concern about the possible side effects of Adderall use for the purpose of enhancement of normally functioning individuals in a double-blind study with 16 young adults. Through this study, they found inconclusive evidence to prove that Adderall use decreases creativity (10).

Another issue that Farah identifies is that of court ordered pharmacological intervention in individuals that have socially unacceptable traits (7). The discussion of this topic focuses on the implications for identity, freedom, and worth. Farah cites that judges often order sexual offenders to comply with medications that will reduce their sex drives. She sees this as an alteration of a person's character and undermines their freedom and dignity.

Farah is also interested in the discussion of monitoring of brain functions. In this, unlike the previous two issues, she is concerned with the overestimation of the abilities to classify brain functions through MRI and other scanning techniques. Rather than concerns with the advancements made and the lag in ethical discussion of the use, she is concerned with current limitations of the technologies in brain reading. In a 2004 article, she states that technologies thus far are only adequate at identifying differences from the norm but not good enough to diagnosis abnormalities in individuals (8). This same statement is repeated in a 2007 article (9). Farah believes this is a topic worthy of discussion because of brain function understanding's close ties with understandings of human nature and self. She argues that with more knowledge about the functions of the brain, ideas about responsibility and definitions of self could change, altering the definitions of what it means to be a person.

Conclusion

Farah approaches these ethical, legal, and social issues through the lens of a neuropsychologist, scientist, and ethicist, emphasizing the social dimensions of being a scientist. In addition to scientific research, through her expertise as a scientist, Farah helps guide discussion topics and methods of approaching the ethical implications of the scientific research. Following her articles and commentaries over the past decade that discusses many of the same

issues and topics with few conclusions, it becomes evident that while science has come a long way, progress is slow and only through time and discussion does it build to great discoveries and understandings.

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